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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/524,172	03/13/2000	BRIAN K CLASSON	CR00219M	6207

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EXAMINER

BAKER, STEPHEN M

ART UNIT

PAPER NUMBER

2133

DATE MAILED: 03/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/524,172	CLASSON ET AL. <i>(D)</i>	
	Examiner	Art Unit	
	Stephen M. Baker	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-39 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-39 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> .	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: page numbering is required; on page 1, line 20, "binary" apparently should be deleted, as it should only apply to "m" equals one, whereas line 21 allows "m" greater than one; on page 9, line 9, a word processing code compatibility error "□" appears; on page 10, line 9, "masks" apparently should be "mask".

The specification has numerous vague references at the beginning of the detailed description to generating syndromes based on "a portion of a vector" (page 7, lines 3, 8 and 14). The abstract suggests that this vector portion is a "portion of vector (122)", and the "vector (122)" is the received word, "r(x)". In contradiction to this, however, there is no apparent suggestion in the drawing figures or in the detailed description proper of excluding any portion of the received word (122) from syndrome generation. See page 8, line 15 and page 9 lines 14 and 23, for example. Accordingly, it appears most appropriate to consider these references as merely pertaining to an internal state of the syndrome generating process prior to completion of the syndromes.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1: the step of “employing information, that is based on a portion, of a vector, to generate a representation” has no clear correspondence to the details of the invention described in the disclosure, and the apparently awkward use of commas in the same recitation is additionally confusing.

In claim 14: a “reducer that employs information, that is based on a portion of a vector, to generate information” has no clear correspondence to in the disclosure, and the awkward use of commas in the limitation is confusing.

In claim 27: “computer readable program code means for causing a computer to employ information, that is based on a portion of a vector, to generate a representation” has no clear correspondence to the details of the invention described in the disclosure, and the apparently awkward use of commas in the same recitation is additionally confusing.

Claims 2-5, 7, 8, 15, 16, 28-31, 33 and 34 also refer to the confusingly-recited “information, that is based on a portion of the vector,”.

Claims 7, 20 and 33 further refer to the “portion of the vector” as a “portion of a preprocessed vector” although it is not clear how “r(x)” is considered to be “preprocessed”, especially as the word “preprocess” is not used in the disclosure.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-7 and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,272,661 to Raghavan *et al.* (hereafter Raghavan).

Raghavan discloses a finite-field multiplier for use in Reed-Solomon decoder syndrome generation (col. 3, lines 35-40). When processing of the received codeword is incomplete the outputs of GF(q) computing circuits provide a “representation” that is “based on a portion of a vector”. The final syndrome is generated based on such outputs.

Regarding claims 2 and 15, polynomials “ b'_{0-1} - b'_{0-7} ” (Fig. 8) are considered to provide “minimal polynomials” in this context.

Regarding claim 3 and 16, polynomials “ b'_{0-1} - b'_{0-7} ” are “selected” to “comprise” the code’s “generator polynomial”.

Regarding claim 4 and 17, any Reed-Solomon code is a type of BCH code.

Regarding claim 5 and 18, any Reed-Solomon code is a type of “binary cyclic code” in the sense used by applicant.

Regarding claim 6 and 19, Raghavan’s basis change circuit (44) applies a “converting and/or transforming”.

Regarding claim 7 and 20, Raghavan’s basis change circuit (40) applies a “preprocess”.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raghavan.

Raghavan doesn’t disclose a software implementation of his Reed-Solomon syndrome generation logic. Official notice is taken that the advantages (e.g. reduced cost, programming flexibility, design simulation) of implementing a Reed-Solomon

decoder in software were well known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Raghavan's syndrome generation logic in software. Such an implementation would have been obvious because the advantages (e.g. reduced cost, programming flexibility, design simulation) of implementing a Reed-Solomon decoder in software were well known.

8. Claims 1, 4-7, 14, 17-20, 27, 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,343,305 to Koc *et al* (hereafter Koc).

Koc discloses an efficient finite-field multiplier for implementation in hardware or software. Koc does not specify using the multiplier for a Reed-Solomon decoder syndrome generator. It would have been obvious to a person having ordinary skill in the art to implement a Reed-Solomon code syndrome generator by using Koc's multiplier, due to the efficiency of the multiplier. When processing of the received codeword is incomplete the outputs of sum calculations logic (312) provide a "representation" that is "based on a portion of a vector". The syndrome is generated based on such outputs.

Regarding claim 4, 17 and 30, any Reed-Solomon code is a type of BCH code.

Regarding claim 5, 18 and 31, any Reed-Solomon code is a type of "binary cyclic code" in the sense used by applicant.

Regarding claim 6, 19 and 32, Koc's basis change circuit (320) applies a "converting and/or transforming".

Regarding claim 7, 20 and 33, Koc's basis change circuit (300) applies a "preprocess".

Allowable Subject Matter

9. Claims 8-13, 21-26 and 34-39 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (703) 305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

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Stephen M. Baker
Primary Examiner
Art Unit 2133

smb
March 3, 2003

